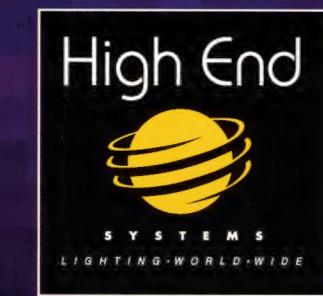


STUDIO COLOR



COLOR
TO
CONTROL

Studio Color® "M" Automated Wash Fixture

Studio Color is tomorrow's light for today's professional. The truly innovative features offered in this revolutionary fixture give the designer unprecedented freedom of control and expression.

Studio Color moves effortlessly and accurately with silky smooth acceleration, allowing it to be used as a repositionable 'fixed' source or to add excitement with live moves.

STUDIO COLOR
LIGHTWAVE RESEARCH AUSTIN, TEXAS USA

Studio Color

offers virtually limitless control over the color and diffusion of its soft edged beam—from subtle pastel shades to brilliant

intense tones and everything in between—but Studio Color offers more: high output, variable beam angle, and Beam Shaping. This unique feature allows full control over the beam—change the beam from circular to oval then rotate the pattern—full theatrical sculpting and dynamics make Studio Color much more than just a 'wash' light.

The MSR 575 discharge lamp in combination with the Studio Color computer optimized elliptical reflector provides over twice the output of a comparable 1000W halogen fixture while consuming only half the power and producing less than one third of the heat. The standard full CTO dichroic filter fitted in the fixture's color wheel corrects color temperature to 2950K in order to match conventional incandescent fixtures if required.

Coloration of the light beam is achieved through the use of two systems. A six position fixed color wheel with user selectable filters is used in combination with three subtractive color mixing gradient dichroic color wheels, resulting in infinite color permutations. Studio Color's dichroic subtractive color mixing wheels employ computer generated color distribution for very uniform coloration of the beam and offer the most seamless 3-color mixing available.

Studio Color features exclusive variable beam profiling, achieved through the use of selectable lens and frost systems. The standard beam angle selection is from 8 to 22 degrees, which may be user shaped through the use of secondary effects lens systems. The beam retains full light output while being profiled. This exclusive system delivers virtually unlimited radial beam profiling in both the horizontal and vertical planes. Additionally, Studio Color features a variable frost effect. This gives dynamic control of beam shape. The fixture may also be fitted with standard PAR 64 lenses to change beam coverage. All positions on the color wheels may be fitted with standard or custom effects, including the full range of Lightwave Research® dichroic color filters.



Because of enhanced optics, Studio Color's 575 watt discharge lamp provides twice the output of a 1000 watt halogen fixture. Features such as beam shaping and color mixing allow Studio Color to transcend multiple markets for concerts, TV/film, entertainment complexes, and architectural applications.

Studio Color "M" Specifications:

Rotatable, variable beam shaping gives full control over soft-edge shuttering
 No fans—convection cooled for quiet operation via integrated heatsink/reflector combination
 Selectable beam angle from 8° to 22°
 Smooth dichroic subtractive color mixing system
 6 position color wheel with replaceable dichroic filters
 The two independent color systems provide infinite color possibilities
 High output MSR 575 discharge light source. 5600K color temperature
 Color correction filters may be fitted in the color wheel (Full CTO fitted as standard)
 Accessory PAR type lenses are available providing VNSP, NSP, WFL and XWFL PAR beams
 Yoke movement of 370° pan and 240° tilt is user selectable for 8 or 16 bit control and has positioning accuracy of 19.8 (sec.) [0.0055°]
 Variable frost
 Stepper motors with smooth micro-stepping used throughout
 Easy, quick lamp replacement
 All functions controllable via DMX-512 protocol
 Full power factor correction
 Four character alpha-numeric display accessing setup data, status and internal diagnostic features. (Display can be disabled if it is in the view of the audience.) LED indicators are provided to analyze power condition.
 Integral AC power switch/breaker
 Convenient carrying handles
 Unit may be mounted in any orientation from the standard fixing positions provided
 Dimensions with lamp head at 90° to yoke:
 483mm W x 610mm H x 381mm D (19" W x 24" H x 15.4" D)
 Dimensions with lamp head in full down position:
 483mm W x 653mm H x 305mm D (19" W x 25.7" H x 12" D)
 Weight: 30.9 kg (68.1 lbs)
 Rated voltage: 198 to 253 VAC*
 Rated frequency: 50 or 60 Hz
 *Note: the fixture operates with international 240 and 250 VAC supplies with no modifications or performance loss.
 Recommended controllers: Lightwave Research LCD lighting controller, Lightwave Research Status Cue® lighting console, or any DMX-512 compatible controller.

Studio Color includes a high speed strobe shutter and separate dimming iris with integral blackout. This combination provides for extremely uniform dimming of the beam as well as rapid shuttering of the lamp and strobe effects.

The fixture uses no fans and is virtually silent in operation. Studio Color utilizes a specially treated reflector which improves the lamp color temperature and increases reflector efficiency. Careful optical design provides a reduction of 65 percent heat between the lamp chamber and the optical section (over four times more efficient than typical systems).

Full control over Studio Color is achieved via DMX-512 protocol. This includes 16 bit pan and tilt over the 370 degree x 240 degree range of movement, and 8 bit accuracy for color wheels, effects wheels, and dimming. The full feature mode requires 16 channels of DMX, while the 8 bit pan & tilt mode requires only 14 channels. An alpha-numeric display is provided on Studio Color, allowing users to comfortably program the address channel, mode, offset and other functions on the fixture. A full set of diagnostic functions are available through the menu system, as well as through the LED indicators. Studio Color also provides for operating software uploads from Lightwave Research upload modules or via the Status Cue® lighting console.

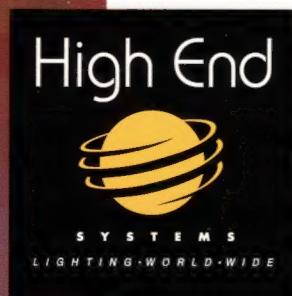
Studio Color is designed for the professional user. Access to all color wheels, color motors, effects motors and drivers is provided via an easily removable high impact, high temperature polymer front bezel. All main circuit boards can be accessed by opening the electronics housing and removing complete modules. The lamp assembly retains optimum lamp alignment during movement and replacement. Multipoint grounding is provided throughout for complete assurance of safe operation. The fixture and all electronics are designed to comply with current UL, CE and CSA safety standards for professional lighting fixtures.



The LCD lighting controller for Studio Color™



Engineered and manufactured by the design professionals at High End Systems, Studio Color is backed by a two year parts and labor warranty.



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High End Systems GmbH

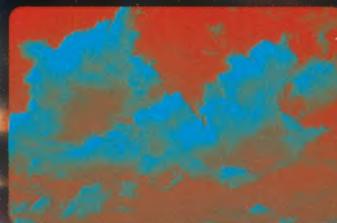
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STUDIO COLOR® 'S' VERSION

High End Systems started shipping the Studio Color®

automated wash luminaire in early 1996 with, outstanding success in the market place. Equally at home on the concert stage, the television studio, the theatrical presentation and the architectural application, Studio Color quickly found its way into such diverse environments as the New York City and Paris Operas, tours by Metallica and Hootie & the Blowfish, Paul McCartney's LIPA School of the Arts, and the World Wrestling Federation's televised events.

Lighting designers are pleased with the range of features and reliability of the fixture—particularly Studio Color's innovative Beam Shaping. But the current 'M' version (M for Magnetic ballast) isn't the end of the story. The 'M' version is a workhorse, designed to meet the needs of most users most of the time. However, there are times and circumstances which call for more finesse in lamp control—High End Systems' new 'S' version is designed to meet that need.

Now available—the 'S' version Studio Color will add a further level of sophistication to the operation of this already successful fixture. What does the 'S' stand for? Well, the primary enhancement is the substitution of a fully electronic Switching Power Supply for the MSR 575/2 lamp.

This highly efficient unit meets a number of requirements from some very demanding segments of the marketplace.

This new lamp supply automatically switches itself to operate on just about any mains supply voltage provided anywhere in the world. Anything from 100 to 230V, 50 or 60 Hz. This makes touring with the 'S' version extremely simple; plug it in just about anywhere and it will work. The operator doesn't have to worry about finding 208V or 220V supplies—110V will do just fine. Incidentally, the 'S' version is also some 5 kg (11 lbs) lighter—that should appeal to many roadies!

Once the 'S' Studio Color is powered up the supply offers a number of enhancements in operation. Lamp ignition uses a unipolar 'soft start' technique. This gives almost instant ignition, even when the lamp is slightly warm, and runs the lamp up to full power in a controlled gentle manner to ensure maximum lamp life. These are both important features, particularly in film or TV work



where it may be necessary to power the lamp up and down many times each day.

Equally important to film and TV is flicker-free performance. The electronic switching lamp supply provides a high frequency 'square wave' current to the lamp. In operation with a conventional ballast, the arc in a discharge lamp continually extinguishes and re-ignites every time the AC supply reverses direction (120

times a second with a 60Hz supply). The normal, slowly varying, sinusoidal current supplied for a magnetic ballast means that the lamp is 'dark' between these peaks for an appreciable period of time, leading inevitably to a brief 'flicker'. This flicker, although generally not visible to the unaided human eye, can appear during high speed filming or TV work. On the other hand, the high speed square wave transitions supplied by the switching supply ensure that the arc is extinguished for a minimal amount of time, providing effective 'flicker free' operation. This can be very important in slow motion film work where the camera is

Studio Color 'S' Version:

STANDARD FEATURES AND EQUIPMENT



running at higher than normal speeds, and with some of the new HDTV cameras which use higher frame rates than conventional TV.

Power consumption is another concern to many people, particularly if they are using generators. Whenever Studio Color is blacked out the lamp is automatically dropped to a 'Power saving' half power mode. Power returns instantly to full as soon as the unit's shutter re-opens. This power saving is completely transparent to the user, and offers considerable benefits in many circumstances. And of course, full electronic power factor correction helps as well.

The 'S' version also accommodates full positional feedback on pan and tilt, ensuring the unit always returns to its preset, even if Studio Color is knocked out of position.

High End is also offering software enhancements which apply to both the 'M' and 'S' versions. New sophisticated software for the color mixing system models the color response of the human eye for optimally smooth color cross fading. Fading between two very different colors gives a smooth transition which looks natural and unforced. Built-in functions such as Random Strobe and Color Chases produce stunning dynamic effects with minimal programming.

Finally, Studio Color offers a full DMX diagnostic tool in every unit—it's possible to interrogate any DMX address through the display and menu system. You can check the data values that are being sent to an inaccessible unit from any convenient fixture on the same DMX link. These software improvements are easily 'uploaded' to Studio Colors through the DMX link, either from another Studio Color, from a Lightwave Research Status Cue® console, or through the inexpensive Studio Color Upload Dongle, which connects to the printer port of any PC.

High output MSR 575/2 discharge light source (6200K color temperature)

Rotatable, variable beam shaping gives full control over soft-edge shuttering

Smooth dichroic subtractive color mixing system

6 position color wheel with replaceable dichroic filters

Variable frost

Two independent color systems provide over 100 million permutations

Full Mechanical Dimming and Strobe

No fans; virtually silent operation

Selectable beam angle from 8 to 22 degrees

Silent, flicker free electronic lamp power supply with quick, unipolar ignition

Auto power saving lamp idle mode cuts lamp power to 50% when shutter is closed

Auto sensing supply voltage selection (100 to 230 VAC, 50/60 Hz)

Full power factor correction limiting power requirement to 4 A @ 230 VAC

Color spins & sequences and random color & strobe functions

Color correction filters may be fitted in the color wheel (Full CTO fitted as standard)

Accessory PAR type lenses are available providing NSP, WFL and XWFL PAR beams

Yoke movement of 370° pan and 240° tilt with full 16-bit resolution

Stepper motors with smooth micro-stepping used throughout

Four character alpha-numeric display

Easy, quick lamp replacement

All functions controllable via DMX-512 protocol

Integral AC power switch/breaker

Power requirements: 100 to 230 VAC 50/60 Hz

Recommended breaker use: 4 units per 20 A @ 230 VAC

Dimensions with lamp head at 90° to yoke: 483mm W x 610mm H x 381mm D (19" W x 24" H x 15.4" D)

Dimensions with lamp head in full down position: 483mm W x 653mm H x 305mm D (19" W x 25.7" H x 12" D)

Weight: 25.9 kg (57 lbs)

Recommended controllers: Lightwave Research LCD lighting controller, Lightwave Research Status Cue lighting console, or any DMX-512 compatible controller



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